



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/501,718	01/07/2002	Patrick Chollet	Q66643	2215
23373 7590 03/13/2008				
SUGHRUE MION, PLLC				
2100 PENNSYLVANIA AVENUE, N.W.				
SUITE 800				
WASHINGTON, DC 20037				
EXAMINER				
ALEJANDRO MULERO, LUZ L				
ART UNIT		PAPER NUMBER		
1792				
MAIL DATE		DELIVERY MODE		
03/13/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/501,718

Applicant(s)

CHOLLET, PATRICK

Examiner

Luz L. Alejandro

Art Unit

1792

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 December 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-946)
- 3) ☐ Information Disclosure Statement(s) (PTO/SE/US)
- Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/20/07 has been entered..

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-13, 15-17, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lieber, DE 4315349 in view of Ota et al., U.S. Patent 5,074,245.

Lieber shows the invention substantially as claimed including a device for processing the surface of a container 10, in which the processing is accomplished by a low-pressure plasma, by excitation of a reaction fluid with microwave electromagnetic waves, the device for processing comprising: an enclosure 6 in which the container is placed, the enclosure being made of a conductive material, inside of the enclosure, the

microwaves are introduced by a coupling device; a tube 2 which surrounds the container to delimit an internal cavity of the enclosure, such that an open space is provided between the enclosure and the tube; a device 14 extending into the enclosure to hold the neck of the container; wherein the enclosure is a cylinder and its central axis is a main axis of the container, such that the microwave coupling device is disposed outside the tube and extends towards the main axis of the enclosure and which is provided within a window of a wall of the enclosure, said tunnel projected on a plane tangent to the enclosure, and wherein the inside diameter of the enclosure is such that the microwaves are propagated into the open space between the enclosure and the tube, before reaching the tube, primarily according to a mode in which an electrical field, resulting from a propagation of the microwaves, has an axial symmetry with respect to the central axis of the enclosure (see, for example, abstract and fig. 1, and the machine translation of the whole document).

Lieber does not expressly disclose that the microwave coupling device comprises a waveguide tunnel and is rectangular in shape, and the smaller dimension of the rectangle corresponds to its dimension along the direction of the axis of the enclosure. Ota et al. discloses a microwave coupling device that includes a waveguide tunnel 8 that is rectangular in shape, and the smaller dimension of the rectangle corresponds to its dimension along the direction of the axis of the enclosure 3 (see fig. 4 and its description). In view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Lieber so as to include the waveguide tunnel of Ota et al. because such waveguide structure is

used and known to be suitable for effective formation of microwave plasma in order to efficiently process a workpiece in the apparatus.

Lieber and Ota et al. do not expressly disclose the claimed inside diameters of the enclosure and the dimensions of the wave guide tunnel, however, a prima facie case of obviousness still exists because it would have been an obvious choice of design to one having ordinary skill in the art at the time the invention was made to select/optimize the inside diameter of the enclosure and the dimensions of the wave guide tunnel, as claimed depending on the object to be processed and/or the coupling mode required, and such limitation would not lend patentability to the instant application absent the showing of unexpected results. Furthermore, where the only difference between the prior art and the claims was a recitation of relative dimensions of the claimed device and a device having the claimed relative dimensions would not perform differently than the prior art device, the claimed device was not patentably distinct from the prior art device. Also, note that the claimed variations of the intensity of the electrical field will be achieved depending on the dimension of the enclosure, and the wavelength of the microwave.

With respect to the container having an elongated neck portion and claims 10-11 and 13, such limitations are not given patentable weight in apparatus claims because they are directed to the material or article worked upon and therefore do not limit the apparatus claims. Furthermore, note that the apparatus of Lieber modified by Ota et al. is capable of processing a container having an elongated neck portion, that comprises a

processed inner and/or outer face(s) and/or a container that comprises a material deposited by low-pressure plasma.

Regarding claim 12, note that inside the enclosure of the apparatus of Lieber, the tube 2 is delimited by a wall made of a material that is transparent to the microwaves.

Concerning claim 15, note that in the apparatus of Lieber modified by Ota et al. the waveguide protrudes past a wall of the enclosure towards the container.

With respect to claim 16, the container is disposed so that its bottom is spaced apart from the enclosure.

Moreover, concerning claims 17 and 19, the waveguide in the apparatus of Lieber modified by Ota et al. is in the form of a rectangle having a uniform rectangular cross section extending to a back wall of the waveguide and the cavity is coaxially disposed with respect to the enclosure.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lieber, DE 4315349 in view of Ota et al., U.S. Patent 5,074,245 as applied to claims 1-13, 15-17, and 19 above, and further in view of Ohkawa, U.S. Patent 5,225,740.

Lieber and Ota et al. are applied as above but do not expressly disclose the tube is made of quartz. Ohkawa discloses quartz being used as a microwave transmission material (see col. 8-lines 19-23). In view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Lieber modified by Ota et al. so as to use quartz as the tube material because such material is used and known to be suitable for transmitting microwaves.

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lieber, DE 4315349 in view of Ota et al., U.S. Patent 5,074,245 as applied to claims 1-13, 15-17, and 19 above, and further in view of Tanaka et al., U.S. Patent 4,970,435.

Lieber and Ota et al. are applied as above but do not expressly disclose a generator which produces the electromagnetic waves, and the generator is disposed to protrude into the waveguide tunnel. Tanaka et al. discloses a generator 11 which produces the electromagnetic waves, and the generator is disposed to protrude into the waveguide tunnel (see fig. 1 and its description). In view of this disclosure, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Lieber modified by Ota et al. so as to comprise the waveguide generator structure of Tanaka et al. because such a structure is used and known to be a suitable, efficient and effective means to generate microwave plasma in a processing chamber.

Response to Arguments

Applicant's arguments with respect to claims 1-19 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Luz L. Alejandro whose telephone number is 571-272-

1430. The examiner can normally be reached on Monday to Thursday from 7:30 to 6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Luz L. Alejandro/
Primary Examiner, Art Unit 1792

March 3, 2008